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ABSTRACT

The monograph is concerned with the development of a prevocational training program that would (1) be therapeutic; (2) introduce activities which provide success; and (3) implement other activities for developing skills, abilities, interests, and social skills. Essential foundations of an effective program in prevocational skill training are presented as well as general and nine specific program objectives. The prevocational skill-training program is outlined in terms of program development, (site selection, program financing, and use of existing educational facilities), the selection of instructors, determination of the curriculum, provision of supplies, program characteristics (individualized instruction, nonabstract teaching techniques, flexible scheduling, and interpersonal therapy), and admission and evaluation procedures. Administrative details and problem areas are also discussed. The programs of the Bridgeport, Conn. Vocational Rehabilitation and Cooperative Education Project are used to illustrate the development and operation of a prevocational program. Some of the specific courses that can be offered are outlined; others are described in greater detail. (Author/BP)

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MONOGRAPH No. 7

Vocational Rehabilitation:

A THERAPEUTIC PRE-VOCATIONAL SKILL-TRAINING PROGRAM

by

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ACKNOWLEDGMENTS

The Project upon which this monograph is based had as its primary goal the providing of vocational rehabilitation services to school-age children from within the school. The objective was to place a rehabilitation counselor full-time in the high school to offer services to students afflicted with all qualifying disabilities. The original plan is largely intact. The early results are most impressive. Many dedicated individuals were and are involved at the State and Federal level. Especially helpful was Mr. Joseph Marra, Chief of Rehabilitation Services, Mr. George Trent, DVR District Director, and the Division of Vocational Rehabilitation Counselors assigned to this Project: Thomas Grant, Janice Guzewicz, William Hacker, Richard Huydic, Edwin Keyes, Theodore Merritt, Sylvia Trachtenberg, and Pearl Vavrek. Recognition should also be given to Dr. James Peters of the Connecticut DVR, and Dr. James Garrett and Mr. Edward Acree of the Social and Rehabilitation Service Agency. There are many others who should be mentioned —numerous helpers who contributed to the advancement of this Project—and to all these, we extend our appreciation.

Special recognition is extended to the teachers who participated in the afterschool programs at Bassick High School, Central High School, and Harding High School. Their perceptive skills and abilities were the backbone of this program.

PAUL A. LANE
Project Director

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PREFACE

In the First Monograph—OBJECTIVE: VOCATIONAL REHABILITATION WITHIN PUBLIC EDUCATION — the general objectives of the Bridgeport Project were related. The need for placing a rehabilitation counselor into the public school system was substantiated, and three different models for this procedure were cited. The unique characteristics of the Bridgeport Project were explained. However, before a program to reach the objective of the Bridgeport Project could be attempted, an examination of the nature of the rehabilitation process was necessary. This information was provided in the Second Monograph, entitled: THEORETICAL FOUNDATIONS OF THE REHABILITATION PROCESS. In the Second Monograph, the rehabilitation process was projected as a synthesis and integration of many diversified and seemingly conflicting theories which account for personality development, personality dynamics, and human behavior in general. The rehabilitation counselor was portrayed as a professional person who utilizes various theoretical propositions in conveying a necessarily eclectic, individualistic approach with each client. In the Third Monograph—PLANNING PROCEDURES: VOCATIONAL REHABILITATION IN PUBLIC EDUCATION—the basic ingredients of the preparation necessary before a Federally supported rehabilitation project can be put into effect were related. The Fourth Monograph of this series was a careful examination of the evolving professional: THE REHABILITATION COUNSELOR. Historically, this counselor has been concerned with the vocational rehabilitation of physically disabled individuals. After World War II, however, the role of the rehabilitation counselor began to change dramatically. The types and number of clients who qualified for rehabilitation increased. The rehabilitation process went through extensive modifications as the counselor found it necessary to deal with aspects of the client in addition to the vocational one. The Fifth Monograph—THE SCHOOL REHABILITATION COUNSELOR—related in detail how the rehabilitation counselor functions once he enters public education. This role was compared with that of the school guidance counselor and the State Rehabilitation Counselor. Also presented were the course of action he should follow to gain acceptance by school administrators and teachers, and the in-service procedures needed to develop a good referral process. The importance of the rehabilitation counselor's own personality characteristics was examined, and treatment and training alternatives were reviewed. In the Sixth Monograph—INNOVATIVE TREATMENT PROCEDURES: THE REHABILITATION OF

DISTURBED YOUTH—new classifications were delineated, and two basic categories prevalent on the contemporary scene, namely, emotional disturbance and behavioral disorder, were differentiated. The objectives for the treatment of these conditions were set forth, and the various theoretical perspectives of therapy were analyzed. The present status of local mental health programs and facilities was discussed, as well as the necessity for new treatment procedures. The innovations initiated in Bridgeport for helping troubled students were then described.

In this Seventh Monograph—VOCATIONAL REHABILITATION: A THERAPEUTIC PRE-VOCATIONAL SKILL-TRAINING PROGRAM—the foundations of an effective program in pre-vocational skill-training are presented. A description of available services is included, along with other administrative details and problem areas. Many of the after-school programs are described. Some of these are given in the form of general curriculum. Other programs are set forth in greater detail so that the reader can better understand what typically goes on in the various shops.

The next monograph will describe a novel treatment program which the Bridgeport Project developed to deal with one category of disturbed students—the Unwed Mother. This disabled student has usually been ignored or shunned because of the stigma frequently associated with her condition. The procedures developed to rehabilitate the unwed mother will be the focus of Monograph Number Eight: THE REHABILITATION OF THE UNWED MOTHER.

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Vocational Rehabilitation:

A THERAPEUTIC PRE-VOCATIONAL SKILL-TRAINING PROGRAM

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INTRODUCTION

When an individual is referred for vocational rehabilitation, it is usually due to his inability to obtain and or continue gainful employment. Barriers to his employment may include either a physical or mental disability. The rehabilitation counselor has to determine whether or not such disabilities can be remediated or, if not, what other skills can possibly be developed. Many times the rehabilitation process must include both treatment and training if the client is to develop his vocational potential. Treatment procedures are necessary in order to remove any blocks to the client's employability and to restore him to mental and emotional health. It has been customary for treatment of clients with mental disabilities to precede any necessary vocational training. However, as related in Monograph VI—"Innovative Treatment Procedures: The Rehabilitation of Disturbed Youths"—it was discovered that providing treatment for the many students who are either emotionally disturbed or who have a behavioral disorder is usually hampered by the high cost of therapy, the availability of few trained professionals, the long duration and often rigid procedures of conventional therapy, and the unreality of many treatment conditions. Therefore, innovative treatment procedures were developed to offset these obstacles as well as to provide more effectively for the improvement of clients with an emotional disturbance or a behavioral disorder.

In place of the more conventional approaches—the psychoanalytic, perceptual, rational, or behavioristic—an eclectic approach, called "pathognomic counseling," was developed and found to be successful in reaching emotionally disturbed youths and those suffering from a behavioral disorder. This treatment procedure is based upon four principles: (1) ahistorical—dealing with the child client as he is now, with his present positive and negative characteristics, in his own particular environment; (2) intensive short-term treatment—lasting generally from three to six months; (3) the use of semi-professional, mental health personnel under the close supervision of fully trained professionals; and (4) cooperative endeavors of the child, parents, school personnel, and counselor.

The main goals of pathognomic counseling are: (1) developing a friendly accepting relationship: (2) developing emotional security; (3) using up surplus energy; (4) introducing activities which provide for success; (5) implementing activities for developing skills, abilities, and interests; and (6) developing social

skills. In evaluating the treatment procedures described in Monograph VI, it was concluded that treatment of disturbed youth was not expedient unless carried out in conjunction with a synchronized, supportive training program. Therefore, such a program was developed so that progress toward the last three objectives listed above could begin while treatment was continuing. It is our contention that, by itself, psychotherapy or counseling cannot do the job of rehabilitating the young client. A concurrent program of pre-vocational training is emphatically needed. In most cases, training was begun during the 4th-to-6th month interval of treatment. Then the client would continue with some training program, without treatment as such, for one or two years. It should be noted, however, that the training procedures which were developed also had to be so designed that they too would be therapeutic, as will be discussed later in this monograph.

THE FOUNDATIONS OF A SKILL-TRAINING PROGRAM

As brought out in previous monographs, the school rehabilitation counselor is instrumental along each step of the rehabilitation process—(1) referral and identification, (2) diagnosis and treatment, (3) training and evaluation, (4) placement and follow-up.

Eligibility for rehabilitation services is based upon three criteria: (1) presence of a physical or mental disability; (2) existence of a substantial handicap to employment; and (3) a reasonable expectation that vocational rehabilitation services will render the individual fit to engage in gainful employment. Since the ultimate goal or rehabilitation is gainful employment, the client many times needs some form of training in order to be employable. Hence, evaluation of the client's readiness for employment is necessary in order to determine what he might be able to do and what he would like to do. (The interests and desires of the client cannot be ignored in selecting a vocational goal.) Moreover, at this stage in the rehabilitation process, after the client has made some head-way in the treatment process, there should be some provision of a program in which the following can be determined:

(1) Useful skills possessed by the client which would allow him to obtain and to hold a job.

(2) His ability to function as a member of a group in a work experience program.

(3) Areas whereby skills might be improved by training in respect to the client's disabilities.

Extensive evaluation of the client must therefore be undertaken in order to identify those who can profit from simplified prevocational training procedures, as well as those clients selected who would need specific vocational education programs.

A training program especially geared toward the needs of young clients should be based upon the following fundamental concepts. (1) Training should be initiated after the client is well on the way to becoming emotionally and mentally healthy. A minimum amount of progress toward the treatment goals must be reached (e.g., response to authority). At this time, then, the client should be enrolled in a training program which seems best for him. (2) Evaluation of vocational potential should be carried out in a therapeutic environment which has the following characteristics, if the treatment procedures begun earlier are to be effective and the results enduring. (a) While the client is engaged in a training program, the setting and the activities should provide support for, and lead to a clarification of, his emotional feelings. (b) The instructors of such a program should be able to accept the student as a worthwhile individual and provide him with much needed success in the use of his manual and intellectual skills. (3) The training program should be able to deal with all types of disability. To focus only on the mentally retarded or the emotionally disturbed, for example, would deny the help which all disabled clients need and subvert the plan for rehabilitating all handicapped students, which would more probably mean in the long run more costly and oftentimes irreversible loss of manpower and human dignity. If evaluation is continuous of those strengths and abilities which emerged while the student client was in treatment, then the rehabilitation counselor has more information about what the client may be able to do successfully. (4) Initial training procedures should be "pre-vocational" rather than specifically "vocational". Student clients should not be expected to have developed those manual and mental skills which would lend themselves to regular vocational training programs. This is especially true for a student who is emotionally disturbed or one who has a behavioral disorder. In many cases, their personalities display certain behavioral characteristics which would make it doubtful that they could participate successfully in formal vocational education programs. In a prevocational program, the student is not trained to perform a particular job or for a specific vocational position. Instead, the student is enabled to develop usable skills and work-oriented attitudes in the general work area. He is encouraged to explore and find out what latent skills he has, in addition to determining those skills in which he can develop a ready proficiency.

OBJECTIVES and PURPOSES

General Objectives

The first objective of the training program is determining the **trainability of the client.** The rehabilitation counselor needs to know those abilities of the client which will relate effectively to a work environment. He needs to know the type of supervision to which the client can respond in a work-simulated environment. Can the client get along with other people who are performing at a similar job? Can he relate to them? Does he persevere in terms of carrying out a directive? Will he interfere in any way with the progress of other people in a work environment? An important question is how the counselor will be able to assess the client's performance in a work environment and the skills he has available. Who will be responsible for the formal evaluation of his performance? Furthermore, what abilities does the client possess which can be developed?

One of the main objectives of a training program is to increase the client's self-knowledge of his own skills, abilities, and interests. The client must be encouraged in an awareness of his positive personality traits and, at the same time, have a certain sense of objectivity about himself. He must become aware of, and be accepting of, both his positive and negative characteristics.

Another goal of the training program is to upgrade and improve the employability potential of the client. The prime objective here is to find out what can be reasonably expected of the student in terms of adjusting to a work situation—what abilities and skills he has, what abilities he can develop, and what vocational alternatives can be available to him. His potential should be developed **not** in a narrow job area, but in a very general fashion. For example, he should not be trained to be a drill-press operator. Rather, what should be developed is his contact and experience with metal-working machinery, machines that bend and shape metals in various ways. It is of greater benefit to the DVR client and to his community if he develops a general knowledge of metal-working machinery instead of a high level of skill on one machine.

In recent years, industrial firms have indicated that the responsibility of industry is to give job applicants specialized training. Industry's attitude can be expressed in this way: "Don't train them to function in a specific job. Send them to us **ready** to respond to the specialized job-training which we will provide them." Too often vocational training becomes obsolescent as soon as the

client gets on the job. It is far more important for the prospective employee to apply for a job with the right attitudes about doing an honest day's work, punctuality, seriousness of purpose, willingness to learn, and the self-confidence that he can do the job.

The objective of the school rehabilitation counselor in this case, for example in planning a training program, should be to develop the client's awareness of different types of machinery and also to give him experience and self-assurance in dealing with machinery. Some students will proceed rapidly through pre-vocational courses; other students will have to take a longer time. Provisions for differential abilities should be handled in such a way that any one student should not feel embarrassed or humiliated.

Finally, another general objective of a pre-vocational training program should be to provide an atmosphere which is conducive to improving or strengthening the client's positive personality characteristics. In this way, the student is enabled to move toward self-actualization and further away from his debilitating emotional disturbance or behavioral disorder. As such, the program is therapeutic.

Specific Objectives

In order to offset the thwarting inertia of the disabled student and other interfering characteristics which are many times found in disturbed clients, the goals of the innovative treatment procedures, described in Monograph VI, have to be included as the initial goals of the pre-vocational training program. Such negative characteristics as impulsiveness, attention-getting and aggressive behavior, dislike of authority, inattentiveness, inadequate skills and abilities, inability to establish reachable goals, and lack of successful peer relationships, must be dealt with. In dealing with such behavior, the instructor first has to establish a friendly, accepting, and warm interpersonal relationship with the student. Furthermore, the student needs to develop a sense of emotional security and greater adequacy in social skills. In addition, when the instructor provides for training of the client's abilities and interests, he is also enabling the student to use up surplus energy and to experience real success.

After these initial goals are provided in the training program, other objectives are also made an integral part of pre-vocational procedures. These are discussed below.

(1) To improve the client's ability to communicate and express himself verbally.

An effective training program should combine pre-vocational training, leading to work evaluation, and be carried out in a therapeutic milieu. The emotionally disabled student typically needs help in lessening his fear of expressing himself. He is often unable to communicate his feelings and ideas to anyone. The instructor of a pre-vocational training program should be carefully selected, and the instructional procedures intentionally low-verbal, so as to allow the student the opportunities to communicate more effectively—such as, requesting assistance or expressing bewilderment. Such instructors need to develop the ability to comprehend the students' non-verbal communications. Many of these students have experienced humiliation in trying to defend their actions and account for their behavior verbally. As a result, they have retreated from verbal expression of their feelings and thoughts. The instructor has to be patient and not over-react, no matter how anxious or provoking the student's behavior seems to be. Students need to talk out their feelings and anxieties, and receptivity on the part of the instructors for the necessary expression of personal concerns cannot be overly stressed.

(2) To develop the whole personality.

Rather than treating one malfunction of the human organism or coping with one disadvantagement, or even developing one aspect of the individual, a successful training program must of necessity deal with the total personality. The child who has a club foot also must develop appropriate attitudes about the world of work. He has emotions and feelings which must be dealt with. He has a concept of himself which, if negative, must be improved before he can enter the work environment. He has certain aptitudes and interests. He is confronted with problems from time to time which must be resolved. He needs help, not only in adapting himself to the world, but also in accepting himself, **as he is.** A training program which seeks only to teach him a trade further cripples him by not providing growth in all areas of his personality. If the particular job for which he is trained becomes automated, he must then not only be re-trained but also re-oriented toward a new vocation. Unless the whole personality is considered, the emotional difficulties which existed when he was first trained still remain unattended to and may in reality have become pressed into the deeper folds of his personality.

(3) To help the client in intra-personal growth.

An adequate training program should enable the student to grow in adequate self-control, to attain a positive self concept, and to achieve an understanding of his own inner feelings.

The client must be encouraged to develop an awareness of his positive personality characteristics and, at the same time, have a certain sense of objectivity about himself. He must become aware of, and be accepting of, both his positive and negative characteristics. He must gain in self-confidence as well as self-acceptance. While he is moving in this introspection and inner-directedness, he should not lose his goal-orientation. He needs guidance in accomplishing things in a planned fashion, rather than in a hectic or impulsive manner. Perhaps, more than anything else, he needs to learn to remain on course toward his goal, even in the face of continuing failure. This is the ultimate objective, but one which will probably be slow in coming until the individual has first achieved self-acceptance and a positive self-awareness—thereby taking on life as it really is, with neither glorified illusions about it not a defeatist attitude against it.

The student's self concept is sensitive to the surrounding environment. If the environment is favorable, the self concept tends to flourish and to enhance itself; if an unfavorable environment prevails, then the self concept is apt to wither and reflect a negative outlook on life. The ego of a child is continually unfolding and can be building in strength and resiliency. The adolescent's identity is still growing and experimenting in various roles and stages of finalization. Therefore, the self concept, ego, and identity are all processes related by a marriage of mind and emotions within any one individual. The training environment must be such that the individual can grow in a positive view of himself. More specifically, if the training program allows him to develop a positive self concept, to maintain a measure of self-esteem and come to face himself realistically as well as accept himself for both his positive and negative characteristics, then the individual's disability becomes less disabling to him and he can forge ahead, seeking to meet his needs and attain his goals. An effective training program promotes a healthy self concept because the individual is doing something well, something of interest to him, something worthwhile, something which is of benefit to himself and to others. For some individuals, this process of experiencing success may occur for the very first time.

A training program which is geared toward the needs of the individual is distinguished by the characteristic opportunity afforded for working out one's inner feelings. Thus the individual has an outlet for his hostility and frustrations without hurting either himself or anyone else. Through satisfying and personally chosen activities, he is given the chance to actualize his feelings

and emotions in a work-study situation. Moreover, if the individual becomes less aggressive and withdrawing in his behavior, he finds that he has less need for leaving the world in daydreams of his own making. He finds instead a world which is satisfying and tension-reducing because he is working in a meaningful way toward goals which are important to him. And all along the way he discovers that what he is doing is mostly right for him and successful—this, in itself, could be a new experience for him.

(4) To foster interpersonal relationships and social skills.

As the young client gains in knowledge of the working environment, he will grow in willingness to explore this environment. As he gains in self-confidence, he will become more open to other experiences. When growth in this direction becomes ongoing, then he reaches a point where he can begin to concentrate on also developing social skills. As he becomes more successful in his work, in that area of activity which is very personal to him, then he is less afraid of "stubbing his toe" in his dealings with others, and the interpersonal realm becomes the less formidable for him. It is in his relationships with others that the disabled individual is often most handicapped—partly because he cannot fully accept himself, especially his disability, and therefore presupposes that neither can others accept him.

In acquiring respect for himself, the individual may discover a greater tolerance for others. He may suddenly find out that he is not a special case of damnation—that others have many of the same problems, e.g., adjustment, self-acceptance, interpersonal relationships. Furthermore, as he attains a certain feeling of oneness with other unfortunate individuals, he also becomes aware of a feeling of empathy—not sympathy, but an intellectual expression of emotion and feeling for another's plight. Many times he learns this by observing the way his instructor deals with him and his fellow students. This step in his growth, in turn, develops an inner strength to overcome his own difficulties. A training program which fosters respect for others—by helping each individual to increase his own skills as well as the by-products of a communal effort—will probably enlarge the individual's awareness of other people and their positive characteristics and a realization that they will not interfere with his own adequate performance.

(5) To enhance the ability to respond positively to authority in a work environment.

Typically, the handicapped youth who comes from a disadvantaged environment has a weak capacity for relating to adults

and authority figures. This may be due to one or many reasons, such as: (a) no adult male present in the home; (b) an inadequate male parent in the home; (c) poor family structure wherein there is no successful male model to imitate and no family structure to communicate routine, order, and security; (d) being disadvantaged often brings about negative experiences with authority leading to actual arrest or referral to juvenile court. To counteract these conditions, the instructor has to impose his authority carefully and gently. He has to avoid situations which place the student in an "either-or" position (e.g., "Either you do this or you will be suspended."). The instructor should present the students with a choice of activities to select from and encourage them to complete these chosen activities. If a student is not working, the instructor should offer assistance without inferring that the student is inadequate.

(6) To expose clients to experiences requiring various manual skills, to develop skillful use of the hands, and to develop meaningful verbal and non-verbal learning experiences.

The training activities in which the handicapped client finds himself engaged are meaningful to him initially because he is trying it out, testing himself in the role, discovering things about himself. As he adds to his self-knowledge and self-identity, his experiences become even more meaningful to him, and he polishes an ever new dimension to his selfhood. The emphasis in a good training program is on a "learning-by-doing" theory. The chance is afforded the student to build his own tools, design his own bookcase or house, fix his own or the family's car, repair well-used appliances from his home, and even fashion his own dreams of what might be or what should be. Practical, rather than scholastic, methods of teaching are utilized, and the student can be observed as he becomes thoroughly immersed in the total process. He can proceed at his own rate, make his own choices of what is to be done, and gain in perspective as to what he can do and do well. He begins to take pride in his own decision-making and the consequences of those decisions because most of the time he has landed on his feet. Finally, the actualization tendencies of the student have been brought about, and he has redeemed himself in his own eyes and in the eyes of those who matter with him. Thus, his life gradually acquires meaning and a precious rightness which serves to broaden and heighten his image as a worthwhile human being.

(7) To promote field trips into business, industry, and other actual environmental work situations.

Field trips, in and of themselves, can be exciting. However, they can also be valuable learning experiences. Unless the student has actually been inside a factory plant, he does not have a picture of the work environment and atmosphere in which adults are taking part. To observe people contributing to the making of some product can be more meaningful to the young client, and can also erase some of the misconceptions he may have, than always being told by others what it is like.

(8) To introduce vocational orientation procedures.

One of the most serious problems facing a disadvantaged, disturbed youth seeking employment is his inability to apply for a job, even when he has something to sell. Many of these youths have a poor self concept with strong feelings of inadequacy and a past history of difficulty in dealing with adults. They have to be exposed to a detailed step-by-step procedure in vocational orientation. They need to know what is appropriate clothing to wear, how to obtain these, how to fill out a job application form, how to reach their job location, how to be punctual. They need to practice responding to an employment interview, and other such work-related matters which many people take for granted that the student knows.

(9) To provide for successful work and training experiences.

One of the more basic foundations of a sound training program is the provision, built into the program, for success. Geared to the individual's aptitudes and interests, the particular course chosen by the individual enables him to be primed for success. He expects to find the work interesting, and a good training program would help the client to realize that expectation. The adept instructor will find an area of activity in which the student can perform, and he can encourage him to increase his proficiency from the level at which he is presently operating. This success is best applied intermittently, according to sound psychological reinforcement principles and learning theory. If reward is always forthcoming, such as when the teacher says "very good" to everything the student does, then he either loses his criterion for accomplishment or ceases to place any meaning upon the pats on the back. It goes without saying, of course, that constant failure defeats the child and renders him incapable of achieving or even attempting to do so. Furthermore, reward which is on a predictable schedule does not create within the individual the inner resources to carry on by himself, but rather makes him seek reward because

he has come to expect it on an extrinsic basis. On the other hand, if he can develop an abiding interest in the activity itself, after a while the activity becomes self-reinforcing and intrinsically motivating—i.e., it becomes its own reward. Moreover, the success which the individual experiences in the program generalizes to other areas, so that it is not uncommonly carried over into the regular school curriculum.

AVAILABLE SERVICES

To provide training programs for the student client is a formidable task indeed. When the attempt is made to find facilities and services in the local community to take care of a great number of students, what is available is surprisingly very limited and, in most cases, inappropriate to this type of client. The training services for handicapped individuals in the local community have been developed, for the most part, for adults who already have had some contact with the vocational world. These are individuals who, at one time or another, have held a job, suffered some sort of physical or mental incapacitation, and have come to the Rehabilitation Bureau for help in gaining new vocational skills. Typical of the kind of services available would be a business school which trains secretaries or which trains adults in the use of business machines. The courses offered by these agencies are often short-term, intensive programs for well-motivated individuals. In addition, there is generally limited intake into the available programs. Typically, there are usually no programs which can offer students training in auto-mechanics, electronics, and many other fundamental areas.

Therefore, services have to be found, made available, or created to attain the objectives of the rehabilitation process which have been established for young people. In addition, as previously noted, such training programs should be pre-vocational and have therapeutic characteristics. Also, many of the students involved can be expected to have serious problems in regard to poor self concepts and other negative symptomatology. Furthermore, the program might have to continue from one to two years. A continuing problem will be motivating the student to appear at a particular place and at a particular time. Since difficulty was often encountered in getting a student to go for a medical or psychological examination, the assumption can be made that the student might balk at going daily to a training institution for 10 weeks, for example.

Time is another important factor in regard to facilities. Most of these organizations run an intensive program five hours a day, usually beginning in the morning. Obviously, the students in school could not be released for that amount of time.

THE PRE-VOCATIONAL SKILL-TRAINING PROGRAM

Development of the Program

Once it is determined that there are limited training resources or facilities—or none at all—available to serve the student clients who need rehabilitation, then pressure mounts on the counselor to provide or create training programs.

One of the first questions which has to be answered is where could such training facilities be located? The physical location has to be adequate enough to serve a hundred or more students who might be broken up into rather small sub-groups—say, not more than 15 each—for any of the different training programs. This could conceivably call for the location of a large building, the renting of this facility, and the furnishing of the appropriate equipment contemplated for the first training procedure. Some of the first programs which might be considered as feasible are training in the operation of metal-working machinery, in electrical repair and maintenance, in the area of carpentry and home construction, printing and lithography, in automobile repair and maintenance.

Financing of the program is another concern. Where would the funds come from to rent a building and to provide it with adequate equipment? One alternative is to approach available private training programs and request the expansion of facilities to deal with these students. This alternative, of course, has several limitations. (1) The private school usually cannot finance such a program in terms of buildings, supplies, and personnel. (2) There is some question whether the student clients would attend. (3) Private programs are quite often more specialized, and the students may not be given the wide range of varied choices more often afforded in public or community facilities.

If difficulties arise in providing funds for this purpose, the solution might be an expedient one—use existing industrial arts facilities in the city high school. This was the case in the Bridgeport Project. An agreement had to be reached with the Board of Education concerning the use of these facilities, when they would be used, how they would be used, and so forth. Assurance had to

be given that the industrial shops would be used properly, that the school system would be fully protected in regard to mis-use of the equipment, and that the shops would in no way infringe upon the adequate use of these facilities during the regular school day. This meant, for example, that the machinery and equipment had to be kept in full working order, that no regular school supplies would be used or borrowed, and that no procedures yet to be developed would interfere with the routine procedures established for the regular school day.

As an illustration, it was found that the industrial art facilities would not be available to the Project unless an instructor who would normally operate in this classroom during the day was employed to use it for the rehabilitation program. This may seem to be an unusual procedure but each instructor in an industrial arts shop, laboratory set-up, or business machines classroom has to have a certain measure of control over the equipment and supplies within that classroom. Obviously, if another instructor should utilize this facility and its equipment and supplies after school, the routine and control of the day instructor might be disrupted. It could cause havoc without question.

In the City of Bridgeport, the Board of Education responded quickly and positively to the suggestion that the industrial arts and other high school facilities be utilized to implement the training stage of the rehabilitation program. The Board placed no limitations, except those cited above and in regard to adequate supervision of the children involved in this program. As a matter of administrative policy, students who were enrolled in the Rehabilitation Program were considered to be still enrolled in the daily public procedures. Therefore, the children who were enrolled in these programs were protected by the formal procedures accorded any child participating in public education programs. There are, of course, many legal ramifications to the above statement. The physical locations which were utilized the first year consisted of an electronic shop, a wood-working and carpentry shop, an automobile repair and maintenance facility, a printing and lithography facility, a drafting room facility, and a metal-working shop. In subsequent years more than thirty vocationally oriented facilities, located in the three high schools, were utilized by this Project.

Selection of Instructors

To a great extent, the programs offered were determined by available shop facilities and instructors. Before a specific train-

ing program was selected, the characteristics and abilities of the instructor of that industrial arts facility were carefully considered. Unless the instructor was evaluated as being potentially competent in working with disadvantaged students who exhibited an emotional disturbance or a behavioral disorder, training in this particular area was not offered.

Determination of the Curriculum

Since the areas chosen for training were limited to the facilities and equipment utilized in the regular school curriculum, careful consideration had to be given to the type of curriculum which was offered in the after-school program so that unnecessary overlap would not occur. There are several reasons for this. First, content had to be low-verbal. The instructor had to communicate knowledge primarily by demonstration techniques. Second, credit towards graduation could not be offered unless the curriculum was sufficiently different from what was presented in the regular school day classes. Third, content had to provide for both successful experiences and a useful product in a relatively brief period of time. Considering the objectives of the training programs, it can readily be seen that curricula would have to differ extensively.

Another characteristic which related to the curriculum concerned the nature of the student. Many of these students were two or more years behind their peer group in academic achievement. They read poorly, communicated poorly, and had a limited knowledge of arithmetic and many other subjects. Therefore, it was decided that the curriculum would not be "textbound", that the course would be so structured that instruction was engendered by either the instructor demonstrating the procedure involved before the students' eyes, by an actual concrete situation, or else by something that the student could learn through a simple diagram put on a blackboard or on a sheet of paper. Sometimes the student could learn through trial-and-error, with the instructor monitoring his performance and giving him advice along the way.

Another necessary characteristic of the curriculum was its non-abstractness. The attempt was made to provide a curriculum which did not ask the student to use abstract abilities. He had to be able to observe visually what needed to be done and then to find a way either by himself or with the encouragement of the instructor to do this. Moreover, the student had to be provided with intermittent success along the way, or he had to be allowed to fail with dignity. For example, failure to correctly complete

a task in this curriculum might mean that the student had not observed all the necessary aspects he should have in order to proceed. So this meant he had to try again. It did not mean that he was lazy, stupid, inefficient, distasteful, or any other negative quality. It just meant he had to try again, and perhaps he had to ask the instructor to guide him a little more closely. In this program, the students were entitled to proceed at their own rate without embarrassment and without the student who proceeded quickly developing an air of superiority. Each student was simply demonstrating his innate or acquired ability without overstressed enhancement of the student.

If the curriculum is not overly defined and restrictive, the instructor can explore learning avenues which appear while the course is progressing and about which the student demonstrates interest. For example, if a student in electronics demonstrates some interest in the workings of a toaster, then he might spend considerable time working with that toaster to discover exactly why it worked and how it worked. To a great extent, Bridgeport students were allowed to become thoroughly engrossed in any of the procedures which were represented by the course of instruction. In addition, time was extended to them to find themselves and to establish a knowledge of self. It was not possible to anticipate how quickly the students would be able to proceed nor was it possible to anticipate the types of inquiry they would make, based upon their interests. Since the objective was to develop a therapeutic program as well as a pre-vocational skill program, it was not practical to have the curriculum defined specifically. The students needed to gain knowledge of their areas of abilities, to develop positive self concepts, to learn to relate effectively with their instructors and with their fellow students. Therefore, a great amount of flexibility and individualization was built into the course.

The curriculum was so designed that the student could continue to proceed at his own rate throughout the course. Furthermore, his rate of progress depended upon a four-step process.

(1) First, the student needed to become totally immersed in the work—manipulating both tools and concepts.

(2) Second, he needed to obtain basic informational labels in order to sharpen his communicative and acquisitive skills.

(3) He needed to develop a facility in assimilating information.

(4) He needed to gain knowledge in translating that information into action.

So initially the curriculum consisted of a broad outline of intention. For example, where the shop instructor intended to deal with certain basic areas, his first objective was the proper use of tools and knowledge of tools. Since this is a broad objective, he could have presented the student with a six-page syllabus which related certain information. However, if he did this, there would have been negative results, for two reasons: (1) it would have been too similar to the conventional education procedures from which the student had already withdrawn; and (2) the student would not have been able to assimilate and transfer the information into the appropriate action. The shop instructor, in this situation, had to take each piece of equipment, one at a time, and relate its identity and its function by demonstrating the actual application of a tool to its use. Again, it called upon the instructor to be intuitive and imaginative in coming up with these concrete practical examples for the student to observe. On each occasion, when the instructor wanted to communicate either a use procedure or a safety caution to be exercised, he had to learn to do this with a concrete example, as opposed to a drawing on a board or something written in a test. Implicit in the selection and development of a curriculum was the recognition that it would be flexible and would undergo constant revision.

Since, for the most part, the curriculum in the regular school was based upon the students' reading and assimilating a great amount of verbal material, it can be seen that the change to a concrete form of instruction was an extensive one for both the teacher and the student. It obviously was a much more acceptable one for these students because they did not have to operate in an area in which they had experienced repeated failure. However, the instructor had to learn to utilize non-verbal forms of instruction, so that his usual methods of instruction needed extensive re-vamping.

Provision of Supplies

It was also difficult to anticipate what supplies would be needed and how they would be furnished. Getting supplies meant, first, determining what supplies were needed (so that unnecessary supplies would not be purchased), finding a way to get the supplies on credit, or in some instances borrowing supplies from the day program on a temporary basis. Some local distributors were ap-

proached for other supplies—informing them by letter that the payment for supplies was guaranteed but would be at least 60 days in coming. On the other hand, supplies could not be purchased on a yearly basis; the number of particular supplies needed had to be secured and determined on a monthly basis, due to the individual needs of the students. It was not possible to know beforehand what particular supplies the students would need for developing their abilities and self-knowledge. In addition, cumulative supplies in any system have a way of being lost and misused.

Program Characteristics

In helping the student to proceed from an abstract method of learning to a concrete method, he can be helped through "implicit motivation"—the course is so structured that the teacher and the student are constantly required to evaluate their progress as well as their intentions. The instructor was required to write down what occurred in his shop every day. On a weekly basis, he would submit his observations to the assistant principal in charge. This way the instructor was held accountable for what occurred in his shop, and, in addition, this procedure usually made him more perceptive and more willing to explore alternatives with the students. For example, many instructors initially had a negative attitude towards a slow-moving student—an attitude of impatience which implied that this student was stupid and unworthy. When vested with full responsibility for helping each student proceed, and having to relate the progress within his shop each afternoon, the instructor became supersensitive to his own abilities, responsibilities, and progress as involved in the teaching-learning process.

Implicit motivation was provided in terms of "guaranteed success". A way had to be found so that each student would be able to demonstrate success in front of the instructor's eyes and before his group. In addition, the student's success would be reinforced. Then, the student was called upon by the instructor to indicate when he experienced both success and non-success and why this occurred. The instructor encouraged the student to talk out why he succeeded sometimes and why he did not at other times. The student was encouraged to talk out in a manner which was non-punitive or guilt-provoking. At a higher level, this procedure is called "scientific inquiry". The student was encouraged to explore with the instructor why he did or did not proceed.

Implicit motivation, therefore, involves the following concepts:

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(1) The instruction is individualized to the students' interests, needs, and abilities.

(2) The teaching techniques are based upon non-abstract principles.

(3) There is emphasis upon flexible scheduling.

(4) Interpersonal therapy is an essential portion of the teaching-learning process.

(1) **Individualized instruction.** While there was a basic amount of information in each skill area, conveyed in part by labels and disseminated to the students on a group-instruction basis, after a minimum level of knowledge had been achieved, the program in each course became as individualized as possible. This was done by allowing the students to explore freely in terms of skills, interests, and needs those tasks which they wanted to attempt. They were encouraged to explore and to proceed as quickly as possible in completing a project, but in a carefully planned and thorough fashion. Since the maximum number of students in each class was 15, the instructor was able to offer a great deal of encouragement and individualized instruction.

(2) **Non-abstract teaching techniques.** What is referred to here is the almost complete absence of verbal instruction, in terms of reading material. In most cases, students learned to demonstrate skills by observing the instructor completing a repair job or a correction procedure before their eyes. Then the students were allowed the opportunity to deal with a concrete task, such as repairing a radio or an electric motor, in which they performed certain semi-skilled functions directly with the object to be repaired or constructed. They were encouraged to think carefully, but in essence what they were doing was the manipulation of a concrete object, based upon visual observation and followed by trial-and-error learning. In a course such as typewriting, the non-abstract technique consisted of repetition of a procedure until it was learned but by using meaningful material such as a letter to a friend. The same sort of procedure applied to the use of business machines, the use of tools in courses such as carpentry and automobile repair. They were all geared to useful and meaningful learning material.

(3) **Flexible scheduling.** Relating directly to individualized instruction, flexible scheduling refers to the opportunity for the student to proceed at any particular time. Of course, even though individualized instruction is attempted maximally, there were

many days when a student was not ready to proceed. As long as the student was trying to achieve, if he did not upset the morale of the class in any way, the student was allowed to take a reasonable amount of time to digest what he had learned, to absorb the total impact of the day upon him. Sometimes a student would come into the shop and would just observe what other students were doing. He did not at that time want to complete a task himself. Another time he would come into the shop and amaze everyone by asking if he could do his homework for his regular school subjects during that time. It can be seen that under such conditions, a lock-step system of instruction could not prevail. At other times, when he was highly motivated, the student wanted to proceed without any interruption and even beyond regular termination time of the class.

(4) **Interpersonal therapy.** This term refers to the fostering of relationships among students and authority figures with whom they may have contact. Each student needed to develop compassion and understanding of other individuals, and other such characteristics as patience, perseverance, respect for another person's traits, honesty, thoroughness, reliability, the ability to listen to someone else who wanted to tell him something, the ability to relate to another person—in other words to communicate something he felt very deeply about, or give information he had acquired or wanted to acquire about the particular activity involved. As an example, one student was attempting to do a minor repair work on an automobile. His objective was to remove a spark plug and to clean it. He began the job easily, without the instructor telling him what to do or without asking what to do. He went over and grabbed what he felt was the appropriate tool and immediately tried to disassemble the spark plug from the block. The student tried to demonstrate to the instructor that he was an adequate individual by first removing the spark plug wire. However, he worked with such haste that he broke the porcelain terminal when he tried to remove the second spark plug. The instructor observed this, but said nothing and he did not convey to the student that he had observed what had happened. Nonetheless, the student observed and realized that something was wrong, although he did not know exactly what was wrong. The interpersonal objective here was really to get him to consult with the instructor—not to place the blame or determine immediately the improper technique, but just to get him to talk over the problem with the instructor. In a situation such as this, the instructor should wait to see whether the student will consult with him; and if the student did not choose to do so, then the instructor would

have to find a way to communicate the needed information without causing the student to feel inadequate and humiliated. The procedure which the instructor could have used is this. After the student had broken the spark plug and had stopped removing the other plugs, the instructor could have approached the car and said to the student:

> *"Jim, sometimes those spark plugs get in there so tightly that you almost have to blast them out. But in most cases, if you use a large enough wrench, you can get enough leverage. You have to be careful though, because sometimes a spark plug is cracked and you can bust your knuckles if you turn a spark plug too quickly and it is cracked. I should have showed you what to do in case this happened. The first thing you should do in removing plugs is take out the terminal caps and the wires and inspect them. Make sure that none of the porcelain terminals is cracked. The second thing you should do is to make sure you have the right wrench to remove a spark plug. If the wrench is too small or too big, then you are going to bust your knuckles. The next step is to start with the most accessible spark plug and apply steady pressure; determine whether it will turn easily. If you cannot turn the most accessible spark plug, then you know you are going to have trouble with all of them. Then, before you go any further you should probably put some mystery oil in there to loosen up the spark plugs. But remember now—we don't want to have any busted knuckles, so we have to proceed carefully with each step. Now what I want you to do is this: start on the other side of the car and use these steps. And as you go through these steps, I want you to tell me when you've reached the steps satisfactorily, so that I can be sure that I have advised you properly. Sometimes, you know, we get going so fast that we don't always advise properly. So maybe if you run into difficulty, it means that I haven't advised you in the right way. Any time you're in the shop, and things don't seem to be working out well, maybe it's my fault. So don't be afraid to come up and say, 'Mr. Jones, I seem to have run into a blockade here', or 'Something isn't working right'."*

If the steps of this communicative process between teacher and student were analyzed, there would be observed an atmosphere of continual acceptance of the student. At no time was the instructor rejecting of him. There was no threat to the student's self-esteem because there was no humiliation of him. No guilt was heaped onto him. The instructor was supportive, displayed a sense of humor, spoke to the student in a friendly

manner. In a sense, he took the student "off the hook" by accepting the blame and, yet at the same time, he **objectified** the situation rather that **personalized** it by not referring to a specific individual.

Sometimes when the teacher obtains feedback from his own spoken words or actual movements of instruction, or when he observes the reactions of his students, he should verbalize each step of the teaching process so that he can discover how he did not instruct adequately—and perhaps why. At the end of the dialogue is a suggestion for more constructive, acceptable communication. The student is encouraged to relate to the instructor his own non-progress without the loss of self-esteem. The atmosphere thus generated is a healthy one and a more profitable one in terms of learning results. A positive learning situation exists for both the student and the instructor. The student is learning that he has much to gain by seeking counsel with his instructor, and his instructor will not condemn him for seeking counsel if he has proceeded in an increasingly thoughtful, patient manner. In turn, the instructor is learning a great deal about his ability to communicate with the students. For example, if he has not done a good job of demonstrating before the student, followed by a minimum amount of verbal communication, then the student might get into difficulty. It should be kept in mind, however, that a student is usually not allowed to proceed in a skill activity without prior instruction. For any particular skill activity, the student is usually given instruction by observation. He observes the instructor doing it, and the instructor is talking while he is doing it. However, if the instructor's communication ability is not as good as it should be, then the student might not learn all the necessary steps which he needs to develop a specific skill, as for example, removing spark plugs. Therefore, when the instructor goes back to the student and says, "I may have left out a few steps," then he is saying to the student, indirectly, "I am not perfect, nobody's perfect, we all have a lot to learn together." He is actually fostering a special kind of interpersonal relationship between himself and each student, and what is about to occur.

Admission Procedures

When a student has formally applied for and has received all the prerequisite procedures and examinations to qualify for vocational rehabilitation, the results of these examinations reveal certain potentials, specific skills, interests, as well as various positive and negative characteristics. Based upon all this information

which has been accumulated on the student, the rehabilitation counselor then recommends that he be enrolled in a particular skill-training program. However, this recommendation is a guarded one, and the final decision may depend, in part, upon the relationship of the student and the teacher's personality. Sometimes a student's personality, as it manifests itself, is contradictory to the personality of an instructor in a particular skill-training course. This does not mean that the instructor is not effective or is not compassionate. It may simply mean that the student may find it difficult to function in a particular course of instruction with a particular instructor. Therefore, some consideration has to be given to the personality factor.

After a student has been admitted to a skill-training course, the first procedure he undergoes is orientation. Many times when a student is enrolled in public education, he may or may not experience such a procedure by his instructor; he may or may not be told specifically what is expected of him. In all the skill-training prevocational courses of instruction of the Bridgeport Project, each instructor spent as much as three hours in orientation communication. The instructor related to the student the general nature of the course, the general responsibilities he would display as the teacher, and the general responsibilities he expected the student to display. In essence, what was achieved was the establishment of a general structure within which the student and his instructor would function. It was a guideline—it prevented turmoil developing in a semi-permissive atmosphere. It gave the student basic ground rules upon which he could depend and to which he could refer. Even at this stage it was possible that a student might either withdraw from the training program or suggest that he did not want to continue in that particular sequence. Thereupon, the rehabilitation counselor had to determine whether or not his withdrawal was realistic in terms of his redirection to another course of instruction, or whether it involved a personality conflict between the student and the instructor or between the student and other members of the class. For the most part, once students were enrolled in a particular course, very few students withdrew. This was an indication, to a certain extent, that the selection procedures were quite adequate.

Following orientation, the next step was the actual initiation of the program of instruction. Obviously the program was initiated by each instructor in a very carefully planned manner. The instructor intentionally provided an exercise which could be grasped rather easily by each student and which gave him an immediate guarantee of successful performance.

Evaluation Procedures

It was deemed essential to the program that both teachers and students evaluate one another. Teachers assessed students in regard to development of their ability, skills, and potential. They also rated students on their positive and negative personality characteristics as demonstrated and revealed, as well as their general growth as individuals.

Students evaluated their instructors more indirectly. They were generally not asked a direct question about the instructor's methods. Instead, they expressed how they themselves were proceeding in a particular area, what techniques they felt would help them proceed more effectively, what positive and negative characteristics existed concerning their participation in a course, and how they looked at themselves as persons.

For the most part, students seemed to be concerned with developing themselves. They seemed to feel that their basic problem was really themselves, and they believed that the instructors were emotionally and humanistically committed to helping them.

ADMINISTRATIVE DETAILS and PROBLEM AREAS

It is one thing to select courses of instruction and to select adequate instructors for these courses. It is another thing to achieve a smooth running department within a school system. Although the after-school program used instructors of the regular school program, there was a need for an administrative person within each school who could accomplish the following roles: (1) represent the school system; (2) handle unpredictable problems which emerged on a daily basis; (3) be responsible for the overseeing of personnel; (4) guarantee a uniform treatment of students and instructors; and (5) attend to the many administrative details inherent in most programs, such as attendance, regulation of conduct, and so forth.

Someone had to make sure that students who were ill or who suffered an injury were handled properly. Someone had to maintain a link between administration of the Project and the teachers. It would be possible, for example, for the Project Director to correspond directly with the instructors, but this would not be an efficient procedure. Therefore, following the first semester of instruction, there was no question that a within-school coordinator had to be supplied. It was determined that the best person to function in this manner should be a person who already functioned as a school administrator. In each case, this turned out to be an as-

sistant principal who was a recognized authority within the school and who was able to extend himself to the program. Thereafter, it was possible for the Project Director to disseminate information directly to the within-school coordinators and who, in turn, passed it on to the instructors. In addition, it was possible to develop procedures whereby any information which was needed from instructors about students was collected by the within-school coordinator.

An additional function which this procedure served was to guarantee the full cooperation of the faculty of a particular high school. By using a regular day school assistant principal, who is a symbolic representative of the public school program, formal respect and acceptance is implied for the program's administrators. The after-school program was actually blending with the day program by extending it throughout the afternoon.

Another person who was necessary to provide an effective training program was the program coordinator. This was a person who did not necessarily have to have college training, but who might be a competent representative of the minority groups involved. He had to be a person who could go into the course of instruction and display himself as being an integral, administrative part of the course of instruction. His real function as a coordinator was to arrange for necessary supplies needed in each course and to arrange for specific requirements which the instructors would place upon him. For example, if the instructor wanted to arrange a field trip, then the program coordinator would take over the responsibility for arranging transportation, lunch, and other matters. In addition, the program coordinator did the legwork required in channeling information and paper communications from the Project Director to the within-school coordinator and sometimes from the within-school coordinator to the various instructors in the course. Probably better than one-third of his time was spent in actually acquiring supplies and delivering them to the various courses of instruction within a particular high school, because the needs of the students could not be anticipated generally beyond one month at a time. Having a large reservoir of supplies was beyond the financial capacity of the Project.

The program coordinator also served the function of reporting to the Project Director or the within-school coordinator any condition which he had observed within the program of instruction which needed attention. Naturally, he did not function as a "spy". In many cases the instructors would be reluctant to request something which was needed or to move for a procedure to

be developed. In this case the program coordinator sometimes brought it to the attention of the within-school coordinator or the Project Director. In cases where an emergency situation arose within a school, such as if a student was injured or sick, the program coordinator would sometimes arrange for the student's transportation to the appropriate place. The lines of communication are brought out in Figure 1.

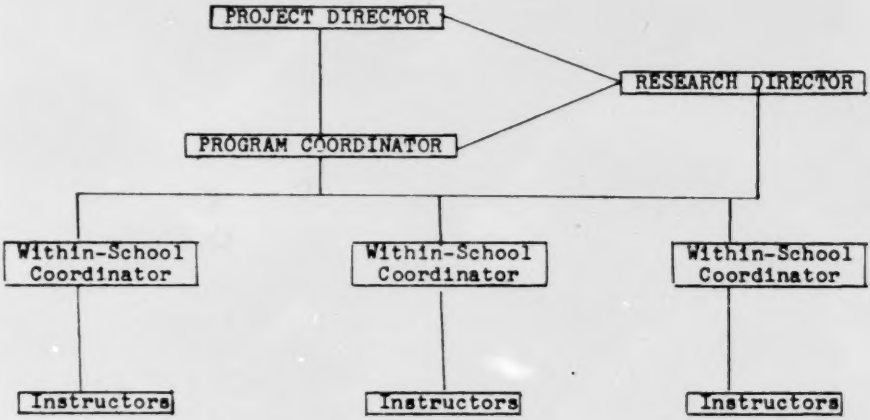

Figure 1

Administrative Line Chart for the Prevocational Skill-Training Program

Transportation Problems

When the after-school training program was expanded from one school to three, and when the curriculum was extended from five areas of skill-training to more than ten, project personnel were immediately faced with a transportation problem. For example, it was not possible to offer all curricula at each high school. Some students would desire to participate in a program offered at another high school other than the one in which they were enrolled. Therefore, it was necessary for the Project to provide such students with transportation from one school to another, and sometimes a school would be located as much as three miles from

another school. Initially this procedure was dealt with by renting a bus on a daily basis, but this proved to be very costly. Eventually the program purchased two ten-passenger station wagons, which operated on a regular schedule between high schools, delivering high school students to various schools and returning them after the program had been completed. These same station wagons were used constantly on field trips, whereby, on a particular afternoon, it might be decided to visit a local industry—and this meant as many as 15 or more students might have to be transported to the industry's facilities and back. Having a station wagon available for each high school proved to be a very beneficial and efficient device. In the long run, it cost much less than what was originally paid each day for a bus from a private concern.

Gaining Graduation Credit

One of the immediate problems faced in developing the afternoon program was how to develop the motivation that would enable students to want to participate in this program. In the experimental beginning of the program, there was no difficulty in getting adequate enrollment in the program because students wanted to learn pre-vocational skills in areas of interest. However, as the end of the first course unit drew near, great anxiety was evident on the part of many students in regard to their eventual graduation from high school. At that time, the possibility was explored with the Board of Education of allowing credit towards graduation for students who successfully completed the courses. Subsequently, meetings were held with the superintendent and his assistants, as well as the principals of the three high schools. The school system already had in effect several programs which were not a part of the regular curriculum and which qualified the student with credit towards graduation—if he successfully completed the course.

One such program was a vocational training course offered in a nearby technical school in such areas as carpentry, electronics, tool-and-die, molders, machinery, printing, toolmaking, and all others connected with machines. There was an additional center in the city, called the Vocational Opportunity Center, which was run concurrently by the Labor Department and the Board of Education, and which offered training in some skilled areas for the seriously disadvantaged student. This center also enrolled adults in its regular program. In both instances, students were accorded credit toward graduation.

As a result of the above conferences, an agreement was reached whereby students were granted seven credits per unit of instruction and 15 credits for a two-unit participation in the course. This meant that a student who attended one of the after-school skill-training programs could gain 15 credits per year. This is a significant amount of credit, especially when one realizes that the total amount of credits needed every year to graduate is 45. Therefore, a student could, through participation in the afternoon program, gain one-third of the amount of credit needed each year towards graduation. Over a two-year period he could accumulate 30 credits. The students' reaction to this announcement was immediate and enthusiastic. Full enrollment in all the courses the following year was accomplished without difficulty. A waiting list for all courses had to be developed so that, if any student dropped out, a substitute was immediately arranged.

The second question which had to be answered immediately in regard to graduation credit had to do with how the students were to be evaluated. Should they be evaluated using a conventional grade standard (A, B, C, D, or F) or should it be numerical from 60 to 100? In the Bridgeport school system, 70 was a passing grade, and any grade below 70 was not passing. After considerable discussion concerning the above question with both administrators and teaching personnel, the decision was reached that students would be given simply a passing or failing grade in the after-school programs. This conclusion related to the basic principles upon which the students participated in the after-school program. As was described earlier, the program was not only skill-training but was also therapeutic. In its structure, students were encouraged to proceed at their own rate; simultaneously, they were aided in developing social skills, and so forth. Based upon the wide differences in ability in these courses and for other reasons, the instructors did not feel that it would be fair or ethical to grade students competitively or on the regular grade method. This led to the conclusion that students would be graded on an all-or-none proposition. In other words, if the student demonstrated a minimum amount of participation in a course and the instructor could conclude that the student was proceeding in a dedicated manner up to the level of his ability, then he passed the course. However, if the student was not proceeding in a consistent fashion, or in a way which implied an increasing amount of control and determination, then he was given a failing grade.

The number of students who failed constituted a very small group. Such students generally failed to attend classes regularly

or dropped out before completing a course. One of the related problems had to do with the decision as to whether or not a failure should be indicated on the student's record card. Since this was a volunteer program, taking place after school, the decision was made that no failing grade would be entered on the student's record card for an after-school program. His failure was a matter of record of the after-school program alone and would have some relevance to his participation in other programs offered after school. However, the formal failing grade was not entered on his official school record.

Conflicts with Other Programs

Since this was a voluntary afternoon program, it would be easy to assume that there would be no conflict with other programs. However, there were three major areas of conflict: (1) Office of Economic Opportunity (O.E.O.) and its Youth Corps Program; (2) Vocational Opportunities Center (V.O.C.) program which was described above; and (3) sports and other extra-curricular activities in which students desired to participate.

The first area of conflict had to do with the O.E.O.'s anti-poverty program, particularly the employment of disadvantaged youths. This program was called the Youth Corps Program. The Youth Corps enlisted students from disadvantaged areas who were given jobs after school for up to a maximum of 20 hours per week, at a rate of $1.25 per hour. When one considers this alternative, it is amazing that we were able to obtain any enrollment of the disadvantaged students in our after-school program. And there were occasions when, due to lack of coordination with the Youth Corps Program, its coordinator would encourage a student to leave the prevocational skill-training program and enroll in the Youth Corps. When this condition was discovered, an immediate conference was held with the administrators of the Youth Corps and the following procedure resulted. If a student was in desperate need for money and he was enrolled in the after-school program, then he would be enrolled in the Youth Corps Program on Saturdays and Sundays. Thus he was able to work 16 hours—8 hours on Saturday and 8 hours on Sunday and obtain the amount of $20.00 a week.

A second area of conflict was in relationship to the Vocational Opportunities Center, co-sponsored by the Board of Education and the Labor Department. It was again possible for personnel within the system, not being fully aware of the after-school training program and its potential, to enroll one of our students con-

currently in the V.O.C. program. The advantage of the V.O.C. over the afternoon program was that it operated on a regular school day basis. A student could go there either in the morning or in the afternoon of the regular school day and obtain credit towards graduation. However, the Vocational Opportunities Center did not have the wide range of opportunity in terms of skill-training which the after-school program had.

The third area of conflict was indeed a serious one, and one which presented the most difficulty in terms of control—sports. Students who were talented in a particular area would frequently go out for Spring training or some other preparatory activity. School regulations prevented students enrolled in the after-school program from participating in scholastic sports. In the Fall semester this did not present any great problem, because students who were involved with sports at that time did not enroll in the program. However, some athletically talented students did enroll in the Fall semester and continued until the time came for Spring-training, at which time they were tempted to leave the program to go out for practice.

As indicated, this was not an easily solved problem. In some respects, one could question whether or not it would be ethical to dissuade a student from participating in scholastic sports, since this had relevance to his personality and maturity, as well as skill-training. In general, however, each student, who seemed to be considering leaving the program for sports, was encouraged to go to the rehabilitation counselor and discuss the problem with him so that all aspects of such a decision could be explored. For the most part, the number of students who chose this alternative was not extensive.

TYPICAL PROGRAMS

The students who enrolled in the afternoon program typically had no idea where they were going or what they wanted to become in an occupational sense. Since they needed to explore various opportunities, it was necessary to provide pre-vocational skill-training in many areas.

It was hypothesized that, if these students were allowed to experiment by trial-and-error in various skill areas, they would be able to be successful in at least one. The program could then build from that successful experience. Some of the areas in which pre-vocational skill-training was offered were: (1) automobile repair and maintenance, (2) electrical repair and maintenance,

(3) printing and lithography, (4) metal machinery operation, (5) carpentry and home construction, (6) secretarial assistant, (7) office machinery operation, (8) sign painting and show card writing, (9) laboratory assistant, and (10) garment sewing and repair.

There were no rigid curriculum guides attached to these courses of instruction. Within each pre-vocational area, each student was encouraged to explore, to find something he would like to try to do. If the task he chose was beyond him, he was encouraged to seek another task until he found one he could complete with some degree of success. For example, in electrical repair and maintenance, after being informed of safety procedures which applied to the electrical shop and a limited amount of information about the use of tools, the 15 students in this course were immediately allowed to choose one of the following activities as their first task:

1. Wiring a setup for a light or bell.
2. Repairing an electrical appliance, such as a toaster, iron, or some other appliance.
3. Trouble-shooting a defective radio (testing the tubes).
4. Constructing a simple radio.
5. Assisting the instructor in wiring an electrical device to oscillator.
6. Repairing any electrical device for his home.
7. Repairing an electrical device for his classroom or teacher.

In many cases the appliance to be repaired was brought in from the student's home. The student was allowed to bring home any product which he completed successfully. An operation was not attempted unless it produced a useful product, which would be immediately recognized as such. Usually the student spent at least a week repairing or making his first product. Meanwhile his instructor did not tell him anything unless the student sought assistance or the procedure he was following was unsafe. However, the instructor did ask him clarifying questions. "What will happen if . . . ?" "What is your next step?" "How are you going to get that off?" "Why didn't it work out the way you thought it would?" " I made the same mistake when I repaired my first toaster—only I got a shock, too." By this procedure, the instructor created an atmosphere which is without intimidation and insult. Together, the student and his instructor are searching for inherent skills. After a week or two, the instructor can sense **without** standardized tests (they do not really exist anyway for

a great many of the skills involved) those skill areas in which the student can function and at what level he can presently operate. Sometimes a student will spend a month or more repairing simple appliances. He becomes engrossed with the needed overexposure to this successful experience. Another student may repair only one appliance before deciding that he wanted to work in the area of radio and television repair. Other students may want to concentrate on learning how to wire a house from the outside power source to the inside outlet.

The learning which took place was typically non-abstract, concrete, and practical. It had immediate meaning to students because progress could be observed and a recognizable goal reached. There were times when a student was not ready to proceed. In this situation he was allowed to mingle and observe other students—even do his homework for the regular school day. However, he had to conduct himself so as not to interfere with the progress of other students. This freedom to choose and explore, to control their own immediate future, had a profound effect on the students. For many it was the first time they felt they were "somebody". They had a one-for-one relationship with an instructor who was interested in them for what **they** were—not what competing students were. If they wanted to tell the instructor about some incident which had occurred during the day or a home, they found an open ear. As a result, most students felt they were somebody worthwhile instead of a failing, inadequate student.

However, the atmosphere which was created should not be labeled as "permissive." All students had to demonstrate successful performance the first week and every week thereafter. They were allowed to float freely for awhile but they knew they had to anchor themselves. The responsibility for decisions was theirs within defined alternatives. Someone was interested in them as unique individuals. "What can you do, Jim? What would you like to try?" "Never mind what someone else is trying. What would **you** like to try?" Naturally the instructor had to guide the student into areas where success was a possibility. He did this by repeatedly suggesting alternatives. However, a great deal of learning was based on "non-success". If a student persisted in an area which was beyond his present abilities, he was allowed to experience lack of success and then the instructor would explore additional alternatives with him. In some cases, the instructor would help the student understand that the task was too difficult for him at that time.

This re-examination and reorientation procedure, however, was completed without embarrassing or humiliating the student. Non-success did not come to mean failure; it meant there was a need to search more extensively for a better procedure or for a different goal. Another way of describing this procedure would be by calling it "guidance through alternatives." Most students desired to work on their own selected task. However, a good sign of progress in emotional security was a student wanting to work with others. It meant he was not afraid to be nonsuccessful with another student viewing him. In Metal Machinery Operation, for example, six students eventually participated in designing and making a two-engined Go-Cart. In Automobile Repair, many family vehicles were serviced proudly. After selecting and completing tasks which satisfied the student himself, his family or a friend, students were encouraged to complete tasks which benefited others. This could be a service to the school he attended or to a social service agency, such as Goodwill Industries. (Many appliances were repaired to be sold.)

In order to attend the After-School Program, it was stipulated that each student had to attend the regular school program for that particular day. Although each student was encouraged to attend the After-School Program on a daily basis, it was not unusual to find certain students missing one or two days a week. An investigation revealed that these students had important reasons for being absent, which did not relate to the degree of their involvement in the after-school program. Actually, the overall effect of participation in the after-school program was to increase the rate of attendance in the regular school program. There were many times when the hour for terminating the After-School Program was reached, and the instructor had to insist that the students go home. Another positive result was an observable improvement in academic performance during the regular school program by students enrolled in the After-School Program.

General Descriptions of Curricula

Among the many training programs offered, the following are typical examples.

Electrical Repair. The students acquire skills and knowledge of stripping down and re-assembling such appliances as toasters, irons, fans, heaters, radios, vacuum cleaners, and mixers. They also investigate current flow with Simpson Ohm meters, trace voltage input and output, learn how to use service manuals, and correct failures. They learn to use test instruments, such as a

volt meter, ohm meter, and tube tester. They get the experience of making an electrical extension cord. Operations of this sort include stripping wire, tieing underwriters knots, termination, and testing. They also become acquainted with the tools of the trade and with reading of electronic schematics.

Some students work with a simulated house program. They attempt to construct this model house and wire it in accordance with the code for electrical wiring in houses. They discover how electricity works and the danger it can involve on a large scale. Demonstrations often consist of: cutting and stripping BX cable, fuse box, wire-plug, wire lamp, wire switch, three-way system, bell hook-up, etc.

Secretarial assistance. Students in this course are taught the basic rules of typing and are given opportunities to increase speed and accuracy. They gain improvement in working and talking with others in the use of the Teletrainer, which has been developed for that purpose. They are introduced early in the course to the automated office package; they deal with the various aspects of the modern office letter-writing. They write meaningful letters, including different letter forms, to known persons—e.g., a particular teacher, parent, friend, employer. They acquire knowledge of English usage, filing, note-taking, spelling, vocabulary, etc. They learn by responding to simulated job demands, and acquire insight to various aspects of business and office procedures. Experience and knowledge are gained by some other students in working with various machines, such as the calculator, comptometer, listing machines, key-punch machines, and computers.

Printing photography and offset lithography. An understanding of letter press operation includes composition, proofing, make-ready, lockup and proofing, and platen press operation. The students make a study of typography, imposition, and lock-up press-work. Later, they may learn about and engage in camera work, stripping, platemaking, and off-set operations. Photography, as a prelude to off-set lithography, is discussed and demonstrated in terms of picturetaking, developing the negative, making contact proofs, and print-making. Experiences include printing business cards, memo pads, stationery and envelopes, as well as photos, press and bindery operation, in two or more colors. The students begin by making their own letter-heads, business cards, etc., or making products for friends and family. However, the majority of their work is production printing, with the operations and

techniques generally including advanced letter-press, off-set photography, off-set stripping, off-set press operation and various bindery operations. The results have been, for example, business cards, invitations, advertising booklets, school photos, and sports programs.

Automotive maintenance. Students learn the routine servicing of the automobile, which includes the lubrication system, the cooling system, front end alignment, wheel balancing, and motor analysis. They develop skills in using tools, equipment, and testers. Further activities include steam cleaning and car polishing, major and minor tune-ups of the ignition system, repairing and replacing linings of the brake system, replacing and honing wheel cylinders, servicing generators and regulators, repairing starters, servicing batteries, replacing transmission seals, and performing valve jobs. These experiences are based upon repair of actual automobiles belonging to themselves, friends, parents, and teachers.

Carpentry. Students in this course may initially engage in the construction of a scale model house, including the erection of a frame-house structure, using lumber cut to scale by the students themselves on the power machine. The houses which they construct are from blueprints of homes actually built in the metropolitan area. The students have learned to read a simple set of blueprints, how to build and install a girder, box sill, floor joists, bridging, and the well holes for a stairway and chimney opening. They have become acquainted with machines associated with the building trades. Some students work in cabinet-making and furniture making; others are associated with millwork and the trimming of a home. Still other students work with full-size materials in actual on-the-job conditions.

Sign painting and store window displays. Various types of art activity are engaged in, affording students opportunities to develop natural abilities in painting, paper construction, decorating design, paper artistics, origami, colors, and textures. Students are allowed to go into various business establishments for observations, and later are given actual experiences in painting signs for the businesses, such as dressing the windows, and carrying out ideas for store displays and decorative exhibitions.

Sheet metal and machine tool operation. Demonstrative instruction is given in the basic phases of metal lathe operation and work, followed by application. A study is made of centering stock, mounting work on the lathe, facing and turning. Some students

are introduced to foundry work, forging, and welding areas. Others work on projects involving the use of lathes, horizontal and vertical miller, drill press, surface grinder, related equipment and hand tools. Still others acquire experience in reading blueprints, shop math, measuring and layout. They may make a complete unit-tap wrench, jack parallel clamps, tool makers vise, "C" clamps, etc. They become proficient in reading all types of measuring instruments—small hole gauges, telescoping gauges, vernier calipers, vernier protractors, gauge blocks, and six-inch scales.

Garment sewing and repair. In this class the students learn about different materials and different types of stitches. They learn to sew on buttons, hem clothes, make buttonholes, and various kinds of stitching designs on the cloth. They become acquainted with and work with many sewing tools—e.g., pinking shears, automatic stitcher, sewing machines and the various attachments. They make simple garments at first, such as pot holders, scarves, aprons, etc., and then work up to the more complicated outfits—that is, shirts, blouses, skirts, dresses, suits, etc. Some have started off by making doll clothes for their little sisters or neighbors' children or, in a few instances, for some children in the orphanages. The main objectives of the course are: (1) to develop basic skills in clothing construction; (2) to learn how to properly fit and make minor alterations in patterns; (3) to learn how to renovate and make alterations in already made garments; (4) to understand principles and elements of design and to be able to apply them to clothing; (5) to learn to recognize and appreciate good quality in fabrics and construction; (6) to learn how to properly clean and care for clothing; and (7) to gain a knowledge of textiles.

The elements and principles of design are introduced, as well as textile characteristics, finishes, and weaves. After the care of fabrics is explored and the various methods of garment-renovation, the course focuses upon construction of a wool dress, a dressy garment, and then a suit with lining. Some girls advance to the point where they can model entire wardrobes which they have made.

Table 1 illustrates a typical one-year enrollment of students in the programs offered in the three high schools of Bridgeport, Connecticut.

		SCHOOL A		SCHOOL B		SCHOOL C	
	TRAINING COURSE	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
1.	ELECTRICAL REPAIR	15	0	12	0	16	0
2.	BUSINESS MACHINES OPERATION	2	8	0	17	3	29*
3.	SECRETARIAL ASSISTANT	1	14	2	14	3	12
4.	PRINTING	18	0	12	0	16	0
5.	LABORATORY ASSISTANT	3	6	3	4	8	4
6.	AUTOMOTIVE REPAIR	16	0	7	0	14	0
7.	CARPENTRY	12	0	4	0	11	0
8.	SIGN PAINTING & DISPLAY	0	0	6	6	3	6
9.	METAL MACHINE OPERATION	14	0	8	0	5	0**
10.	GARMENT SEWING & REPAIR	0	0	0	10	0	14

* More than one section

** Combined sections

Table 1

Enrollment in Various Training Programs of Three High Schools in a Representative Year

PROFILES OF SPECIFIC PROGRAMS

Now that a general description has been presented of the various offerings in the pre-vocational skill-training program, it might be well to describe what actually goes on in any one day in a few of the courses.

A Day in the Printing Shop

Some of the students started arriving to the shop right after regular school was out. In the 45-minute interval between the end of the school day and the beginning of this course, they often congregated inside the room to talk about their projects or about what had happened during the school day. Others would sit up at the front of the room, where it was quiet, so that they could get their homework done before the printing course started. Still other boys would arrive at various times until 3:00 P.M. when the training program in printing would begin.

Although there is a different organization of activity and diversity of assignment each day, each boy knows where he will be "stationed" for the day. Each one has a different job to do,

although small groups of two or three boys are noticeable. The instructor begins this day by going to each boy finding out what each one will be doing, and then finding out what supplies will be needed during the next three hours. He discovers that one group needs special chemicals mixed. He finds out that one boy needs some small business cards. Another needs cover stock paper for the coming school dance. For still another group, the instructor will be getting out the film for a photography project. After going to the supply room and handing out what is needed for the day, he goes to the dark room to make a few mixtures for other photographic assignments.

It is now 3:15, and the projects are in full swing. The instructor is walking about the room, observing the work being done in the various stations, answering the boys' questions, giving demonstrations as the need arises to the particular group involved. The only time when the whole class may be stopped is when corrective action is required principally for safety reasons.

A visitor will notice five areas of concentration outlined in the room. In one area students are working on letter press operations, mostly for personal items. Two boys are making memo pads for themselves with their name and address. One of these boys is starting his project today, so he is in the first, or "layout" stage. The other boy is already on the next step, in "composition," which is setting the type. Two others are proofing and correcting some school stationery they have designed. They will be ready soon for the fourth step, the "lockup," which is positioning of the type for the press. They will be tightening up the tiny pieces of type within a frame or chase. The fifth step is "makeready" or making the job ready for the press, and then the actual pressrunning. The instructor will probably be checking the ink, the color, the impression made on the paper, and making pertinent comments.

In the second area of activity, one boy is making a rubber stamp for the school library. He has already completed the first four steps—layout, composition, lockup, and proofing. He is now making the mold, the "matrix." He will place the rubber into the matrix and then later peel it off and mount.

The third area is photography. The boys have finished taking pictures. One bo[illegible]s now in the dark room developing some of the negatives. Another boy is making prints. "Too much light in this one, Joe," the instructor remarks. "I think a different filter might be better next time." Joe will later get some more film and try out the instructor's suggestion.

The next area is lithography or lithoprinting. One boy is involved in "copy preparation"—he is typing the names of the opposing football team for Saturday's game; then he will do the layout, setting the type. Another boy is involved in offset photography and photographing repro copy. The offset process goes from positive to negative, and back to positive. He will need to burn the positive image on the plate. Another boy is engaged in "stripping" and "negative" correction on the invitations for the dedication ceremonies of the Evaluation Center. He is also laying out the negatives for printing. A fourth boy is engaged in platemaking—preparing the plate for presswork. Still another boy is doing the actual printing.

In a final area, the bindery section, one boy is boxing the dance tickets for the "Fall Fling". Another boy has machine-punched some memo pads and is about to put on the plastic binding. A third boy is binding the new booklets on the skill-training program.

As the instructor moves about the room, supervising the work being accomplished in the five areas, he is also answering the many questions asked of him. "The layout looks good, Ken," he answers. "How about a bit more ink, Dave," he suggests to another. "What do you think, Paul—Close down?" "Look on the back side of the paper, Bill. Is the impression coming through?" "Do you think an enlargement in this area would improve it?" "Better check those names again, Pete. No guy likes to see his name spelled wrong, you know." (There is a little chuckling at this). "I'll get some yellow paper for you. The print may look clearer on the yellow than it does now on that blue." "Got a balky machine there, eh, Dick? I'll be there in a second, as soon as I get the mixture for Carlos."

It is now 5:40—time to clean up, finish a job, put things away, and get ready to leave. Manuel is reluctant to stop yet. He thinks he can finish 1500 programs in 15 minutes. The instructor teases him a bit—"I know you're fast, Manuel, but not even you can do all that in such a short time! Why don't you let it go for now. You'll have plenty of time to start your next project tomorrow."

With that, the presses stop working, and the sounds of the past three hours begin to stop. The work is put away until the next time. Amidst the talking and joking, the boys grab their books and other paraphernalia and walk out of the room. The instructor makes a last minute check of the room. Then as he approaches the door, he notices that one of the boys is waiting to ask

him a question. He smiles and announces, "I'll be with you in a second, Joe," he snaps off the light and closes the door. Another fruitful day has ended. Much was accomplished today. The instructor, pleased with the day, walks down the corridor with Joe. It is time to go home now. Tomorrow they will all start again.

A Day in the Auto Shop

Upon arriving at the shop, the boys move to their jobs. Soon after the class begins, the instructor receives a phone call. As he intermittently listens and talks, he looks out through his office window and watches the boys at work. He sees two boys in the electrical section, making an engine analysis with the Sun Tune-up Lab. 720. Two other fellows are installing a distributor in a 1958 Chevrolet. Robert and a new student are removing brake drums from a 1955 Ford. Two other fellows are removing engine heads in the overhaul section. Dick and Chip had been assigned the job of removing a transmission from a 1964 Chevrolet, and they are now having some difficulties. Tony is cleaning valves on the wire brush, using safety goggles. Harry and Tim are greasing and lubricating a car. In the valve-grinding section, there are two boys waiting for the instructor to explain how to operate a valve-grinding machine.

After talking to the owner of the 1958 Ford needing brake work, the instructor hangs up the phone. He goes over to the valve-grinding machine and hollers across the room to Robert, "That Ford must leave today unless you want to marry it." The class chuckles. The boys continue these jobs until it is time to clean up and put tools away. Soon, the instructor switches off the lights and closes the door. The instructor hesitates a moment, as if to check over in his mind about the condition and state of each tool box and machine.

A Day in the Electric Shop

Bob is the first one to arrive at the afternoon electric shop program. He greets the instructor and walks over to his project storage locker. From his locker he removes various parts and pieces of equipment and organizes them at his work station along with a soldering iron and several test instruments. He sits down and begins working. Within the next five minutes, several more boys arrive and perform similar activities.

The decibel level in the shop begins to rise with the activity of busy students. Within fifteen minutes, the class is busy working

and fully prepared to spend the next three hours laying out or tracking down paths for electron flow.

The boys are either working in the electronic assembly or appliance repair areas. The boys working on electronic assembly are building a stereo amplifier. They started with a blank chassis, drilled and punched out the necessary holes, mounted the main parts, and now wiring and soldering. Ted and Tony have progressed to the point where they no longer need step-by-step directions to assemble this amplifier, but can work directly from a schematic diagram.

David, an enterprising young member of the class, brought in a toaster today. He saw a chance to increase the amount of his pocket money by soliciting friends and relatives for malfunctioning appliances, and has since repaired several electric irons and hair dryers. But this was his first toaster, and he was amazed with the complexity of the device. The instructor, noticing the puzzled look on David's face, walked over to him. "What's the trouble, David?" "I don't know where to start," David replied. The instructor reminded David that the first thing to do with any appliance before plugging in was to make a visual examination of the cord and plug and anything that might make the appliance unsafe. David said he remembered and immediately checked on the more obvious of the safety factors. The appliance looked safe, so David plugged it into an electric receptacle. The toaster heated all right, but it was soon obvious what the trouble was. After several minutes of heating, the toaster did not pop up. The instructor then explained to David that the bi-metal strip did in theory work the same as the one in the electric iron except that when the bi-metal strip in the toaster bent, it released the carriage resulting in the toast popping up. David noted that the bi-metal strip was not bending enough to release the carriage. "There's your problem," the instructor said, pointing to an adjusting screw which could solve the problem. A smile stretched across David's face. He understood.

And so the day went with the instructor making notes on the students' progress charts from time to time. A quick glance at the charts indicated that each student learned something new that day or learned to do something better—something that he could quickly and easily apply again to another problem which he might encounter on another day.

A Day in the Clerical Class

The instructor greets the first two students, who arrive after school for the pre-vocational class in office work, with "How are you today?" "Just fine," answers JoAnn. Sandra replies, "Fine. Couldn't be better." These girls enter the room and sign the attendance sheet. They take their places after picking up their materials from the drawers and files. Then they take out their boxes in record-keeping.

Other students soon follow. Ruth takes out her folder from the files and assembles her materials from the drawers. Sheila asks the instructor for a few Ditto Master units. Tom requests some mimeograph stencils and stylus pens. Pat picks up some eight and a half by eleven inch white paper and carbons.

In the typing section, one of the two groups are beginners who are working on the workbook assignments now that they have learned the keyboard. The other group is composed of more advanced pupils who have been told what the project is for the day and are now assembling their materials. Yvonne, June, and Diane pick up the paper for their letter projects and begin typing. Patricia soon asks for help from the instructor and later requests to do her project over again after being told how she could improve it.

About ten minutes later the advanced pupils begin working on a stencil. Doris goes to the file and secures the supplies and gives them out to herself and Alice. They begin their project in stencil-cutting for the mimeograph. JoAnn works on finishing a Ditto Master; she started to do it yesterday, but did not have time to complete it.

Brenda, Ted, and Marlene continue to work on their project in record-keeping. Although they began together, none of them keeps the same pace. Ted finishes his first, and asks to have his work checked by the instructor. Some, like Carolyn, are slow to ask for help and need to be asked whether they want help. Carolyn is overcoming her shyness somewhat, but still needs a helping hand at times.

Later on, some of the pupils receive instructions on the Burroughs Calculator, the Plus, the Comptometer, and the listing machines. Claire and Marlene are getting the techniques needed in addition, substraction, multiplication, and division on both the calculators and the listing machines. Then the class stops at 3:45 until 4:00 P.M. for a coffee break.

After the coffee break, the students see a demonstration of the Instant Copier, on loan from a Bridgeport firm for a few days. Tomorrow the students will begin instruction in consumer education. Next week they will see a movie on this subject. Later the class will be using the Tele-trainer, furnished by the telephone company. Soon the request goes out from the instructor to put all materials and books away in the files, drawers, and shelves. It is time to close shop.

A Day in the Wood Shop

The boys arrived in a bunch on this day. They came into the shop, put their books down, took off their jackets or sweaters, and tied on their aprons. They immediately went to their own stations.

Ned picked up a paint brush, opened a can of varnish and put the brush in it. He pressed the brush against the side of the can to remove the excess paint and proceeded to apply the varnish to the wood. Pete operating the band saw had a problem. The instructor walked over and noticed him misusing the saw. He had put on a rip fence but did not have it parallel with the blade, and instead of cutting the wood he burned it. He did not know the proper way to put a rip fence on the machine, so the instructor showed him. He got a ruler out of the tool cabinet and placed it horizontal to the blade and measured over the right amount of inches. Then he set the rip fence. He checked all the guards, cleaned away all the scraps from around the machine, turned on the machine, and started cutting the piece of wood for him. Pete finished the cutting.

Danny continued working on the circular saw. He had just recently started with this machine. Today he set the rip fence and raised the blade. He started the machine and started his cut. When he was finished, the instructor, who had been watching him from across the room, walked over to him and told him he was coming along fine on this machine. Howard finished his tool box and wanted to put the electrical part on it. He was shown how to strip down the wire and to connect the plug.

At clean-up time, each boy had a job to do. One boy had to clean off some of the machines. Another had to clean the floor, another the benches. Each day they change jobs and they are evaluated on the quality of their clean-up. At the end of this day, Phil locked up the tool cabinet, and all left the shop clean and ready for tomorrow.

A Day in the Metal Shop

Every student first learns how to cut threads on the lathe. They become familiar with different types of threads and are introduced to particular applications for any specific thread. They receive experience with various operations, such as taper turning, boring, undercutting, or other kinds on the milling machine or the surface grinder.

Each student, however, is individually trained. Larry, for example, is making a large nut and bolt. He has selected round aluminum stock, sawed it to the correct length, and faced both ends on the lathe. He turns a section to a prescribed diameter maintaining tolerances of plus or minus .002. He has to use a micrometer to check his dimensions. A portion of the turned section has to be threaded, which requires a different set-up on the lathe. It also involves mathematical calculation to determine the proper depth of the thread. All of the above operations are found in actual industrial processes. From the remaining stock Larry will then proceed to make the nut for the screw. Again, mathematics are needed to drill and bore the inside diameter to the correct size. Several different sizes of drills are selected to drill a hole in graduated steps. Adequate and proper lubrication is used while drilling. Safety is constantly emphasized, i.e., safety glasses, loose clothing, and placement of tools in a safe area on the machine.

In order to finish the hole to the correct size, Larry has to use the boring tool. The inside diameter is measured with an inside caliper and micrometer. Internal thread cutting is then undertaken. Upon completion Larry will move to the Bridgeport Milling Machine Company where he will produce a hexagon shape from the round stock. To set up the rotary table, Larry has to use an indicator to position the table in the exact center. Another mathematical calculation is then used to determine the amount of material he has to remove. Quality control of the product is emphasized throughout the machining process.

Other students are also currently involved in similar operations. Reuben is machining a slot in steel to a prescribed width and depth, centrally located from each side. Here again, the micrometer has to be used. Paul is milling a sequence of steps, each being a predetermined length and weight. Allan is using the lathe to make flat discs of brass. He will turn the outside diameter, drill the hole, break the corners with a file to a maximum width of one-thirty-second of an inch, and use the cut-off tool. Each student may or may not continue with the same machine or he may move

to another machine—either today or the next day. This will be determined from the type of operation he faces.

A Day in Another Metal Shop

The metal shop doors open at 2:45. Most of the class is already in the shop. The others trickle in from detention a few minutes later. The boys pass a quick greeting to the instructor as they rush by him on their way to their lockers. Lockers are quickly opened, aprons donned, and some even remember their safety glasses. Then, like eleven men of a football team, all playing backfield, the group scatters to predetermined work stations. Well, there have to be three or four that don't remember the play. They converge on the coach for instructions.

The instructor takes a clipboard down from the wall and makes a check of attendance. His desk is cluttered with half-finished chores. Catalogs are laid out to aid in the requisitioning of necessary materials and supplies; requisition forms are atop the catalogs. Anecdotal report forms peek out from beneath the catalogs; and the beginning of a shop inventory, requested by the school principal, lies to the side of the whole heap, along with sundry other papers, notes, books, and tools to be sharpened or repaired. In a moment he hangs the clip board back up on the wall and turns first to Jose who is closest to him. "What do I do now?" asks Jose, presenting the instructor with the parts to his project—a hammer handle and head. The handle is rather stock design but the head is a one-of-a-kind original, designed and created by Jose himself. Jose, like many youths, is not ready to work from prints or specifications. The mysteries of measuring to a thousandth of an inch with a machine tool is beyond Jose, who has troubles reading a common ruler. This will come later, but for now, Jose is feeling steel being cut with a machine tool, gaining some sense of operating and setting up, gaining an appreciation of the machine's capabilities and uses, and learning considerations of safety. Jose was now faced with a separated hammer head and handle. The instructor asked, "You don't have any idea what must be done next?" "I'm not sure." replied Jose. "Surely you must notice other boys in the shop making hammers." "But I don't want to make a mistake," said Jose. The instructor proceeded to give Jose step-by-step instructions. "Now don't forget—locate your center, center punch, level in the drill press vise, drill with a thirty-one sixty-fourth drill. Then come back to me and I'll help you assemble—comprende?" Jose nodded affirmatively but the quizzical expression on his face as he departed was not very encouraging.

By now the other boys have already started their own operations. The noise level has grown fierce. Andy has the melting furnace roaring. He is preparing to do some casting. John has the forge blaring accompaniment to the furnace while beating some red-hot iron into shape on the anvil. Pat is engrossed in the welding area. He has Dominick helping him weld the chassis of his "go-cart." All the lathes are occupied and adding to the furor. Gary is using the Bridgeport Miller to machine a piece for the target-pistol sight calibrator he is building. The instructor surveys the activity to make certain all the boys are observing reasonable safety precautions. He shouts to Chip to put on his safety glasses and then turns his attention to the next boy with the problem.

Paul asks what kind of stock he needs for his project. He is told to cut a seven-inch length of one-half inch diameter, cold-rolled steel. Mike wants to know what size tap drill he should use for a one-half thirteen thread. He is referred to the tap drill chart but the boy can not read it. The instructor shows him how to use the chart again and hands him the proper drill. Paul returns, holding a length of black metal rod. "Is this the stuff I need?" he asks. "No, you've got tool steel there," is the instructor's reply. He accompanies the boy to the tool rack, pulls out a bright piece of steel, and hands it to the boy. "How do I cut it?" asks the boy. "Try using a hack-saw," is the reply.

Juan is just about to present his problem when the instructor's attention is drawn to Steve, who seems to be having some difficulty on a lathe. Steve is a new boy in the shop, and it appears that he also has been needing direction. He had come to a phase of his project requiring the turning of a taper, but since he had not been instructed in the use of the lathe taper attachment and did not seem to relish the idea of waiting his turn for the instructor's attention, he decided he would "doodle" on a piece of scrap in the lathe in the meantime. Ordinarily, this might not have been a bad idea, but in this case the piece of scrap turned out to be a hardened tapered sleeve—a piece of equipment belonging to the lathe. The instructor was shocked when he looked over to see what Steve was doing. He quickly removed the mutilated sleeve from the lathe, threw it in the refuse can, and asked Steve to get to his project. It was apparent Steve was not a boy to leave to his own devices for any appreciable length of time.

The instructor took Steve's project and shouted over the roar of the shop to the rest of the class that he was going to demonstrate the use of the taper attachment and for all students to assemble together. Partly owing to the noise and partly because

they were engrossed with their own projects, it took several more shouts before everyone was assembled. With the demonstration concluded, the other boys are sent back to their own work.

Two boys from the automotive shop enter. One is carrying an automobile exhaust pipe. They would like some welding done. The instructor tells them, "We have our hands full too, but maybe I can get a couple of the guys to do the job tomorrow. O.K.? Say, why don't you join this class next year. Then you can do your own welding." The two leave with, "Oh, we don't want to show up you guys." As the instructor walks toward his desk, Jose is upon him again with his hammer head and handle. "Something is wrong with the hole I drilled," he wails, "The handle slips right in." "You didn't use the thirty-one sixty-fourth drill." "But it looked like the right drill," Jose explains. The pair is interrupted by Andy who has come between them clutching his right hand with his left, hopping on one foot and then the other, and grimacing in obvious discomfort. "I reached for a hot casting by mistake," he gasps. The expression on Jose's face changes from a sheepish grin to one of sympathy and back to a sheepish grin as he observes Andy's little dance.

The instructor takes Andy's hand, surveys the injury, and shouts to Gary to stop his work and to scrub-up for "medic" detail. "The skin isn't broken—just a little brand," is the diagnosis. "Probably won't even hurt in a couple of days," the instructor comments as he prescribes the usual burn salve and bandage.

Before the instructor can return to Jose's problem, Juan blurts out that the lady next door wants him to make her a "muletta," a grinder of spices for making Spanish food. The instructor tells Juan to draw a sketch of whatever it is he is hoping to make so that he better judge whether it can be made by Juan in the shop. Juan goes off to sketch.

A teacher from one of the other shops pokes his head in the door and shouts, "It's break time." The instructor looks up to the clock and agrees; so he shouts, "Take ten, boys." A few stop work and leave the shop, but most continue to work.

The instructor devotes his ten minutes break to Jose. "You used a one-half drill to drill your hole, Jose, and naturally a half-inch rod fits rather nicely into a half-inch hole. We will have to use an alternate method to fasten your handle to your head!" Jose replies, "You're teasing me again, but that's alright—I have big, broad shoulders." Then off he went to carry out further instructions.

With the break now over, Juan came up to the instructor with his sketch. Then Gary asked him for the vernier protractor and surface gauge. Chip asked for some new emery cloth. Pat displayed a poorly welded section of his go-cart and proudly asked, "How's this?" Jose then ran up and asked, "What do I do now?"

Just before clean-up time, it became clear that Juan wanted to make a very large pestle for the lady next door. The problem cleared up, the instructor urged the students to expedite their clean-up and to put away the tools, equipment, and projects. He then went around to lock all lockers, picking up some tools the boys had overlooked, and giving the shop a general inspection—all electrical switches off, oxygen and acytelene valves off, windows shut. It was now 5:45.

The boys washed their grimy hands, put on their coats and bid the instructor and one another a good night as they filed out the door. Steve and his pal Mike were the only two remaining. They were seated in the classroom area doing homework as though it had to be completed before they left. The boys continued with their work as the instructor stood by them jingling his car keys. "Say, why don't you birds save some of that work for home? It's called **homework** for a reason, you know." The boys laughed and tried to stall him for a few more moments just long enough to answer another question or two. The instructor moved towards the light switches and announced, "The last one out is a SHOP TEACHER." That made them scramble! It was 5:58.